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Acute Coronary Syndromes

QRS DURATION AND LEFT VENTRICULAR EJECTION FRACTION IN NON ST SEGMENT ELEVATION MYOCARDIAL INFARCTION

Poster Contributions
Poster Hall B1
Sunday, March 15, 2015, 3:45 p.m.-4:30 p.m.

Session Title: From Cardiac Arrest, LV Failure to Myocardium Salvage
Abstract Category: 2. Acute Coronary Syndromes: Clinical
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Background: Non-traditional EKG parameters as pattern of QRS or its duration (QRSd) have been investigated in acute coronary syndrome. Following an infarction, the heart attempts to compensate for myocardial loss through remodeling which alters the ejection fraction over time. Our objective is to evaluate the relationship between the QRSd at the time of NSTEMI and extent of coronary artery disease (CAD) or changes in ejection fraction (LVEF).

Methods and Results: Patients admitted to the hospital with NSTEMI between 08/01/2006 and 9/30/2012 were included. Patients were classified into a high or low group at a cut off value of >90 msec on the QRSd noted at the time of NSTEMI to facilitate comparison. Patients with a known bundle branch block or paced rhythm were excluded. A total of 1455 patients with a mean age of 66±14 yrs were included in the study. 49% of them were males and a majority were African American (68%). Patients with a QRSd >90msec had an increased prevalence of triple vessel disease or left main disease (44% vs. 34%; p<0.001) on the initial coronary angiogram compared to those with QRSd <90msec. They also had a lower ejection fraction at the time of the NSTEMI on echocardiogram (46±15% vs. 51±13%; p<0.001) and a significantly higher troponin peak (16±48ng/dl vs. 11±28ng/dl; p=0.012) compared to the low group. The high QRS group had a higher incidence of severe LV dysfunction at baseline or LVEF <35% (31% vs. 17%; p<0.001). The LVEF remained lower in the high QRS group even on follow up for 1 to 12 months in the 534 patients (46±15% vs. 50±13%; p<0.001) where data was available. On follow up, a QRSd <90msec predicted a marginal improvement in EF (1.27±10%; p = 0.049) but in patients with QRSd >90msec no improvement was seen (0.05±11%; p=0.937).

Conclusion: A QRSd >90msec at the time of NSTEMI is predictive of significant underlying CAD and a lower LVEF in patients at baseline and follow up. This depression in LVEF is maintained on follow up between 1-12 months thus identifying a group of patients that may potentially benefit from more aggressive therapy and closer follow up which can in turn reverse cardiac remodeling and subsequently the ejection fraction.